5th International Conference of IGCP 588 and Fieldtrip Guide

SEISMIC AND NON-SEISMIC INFLUENCES ON COASTAL CHANGE IN ALASKA

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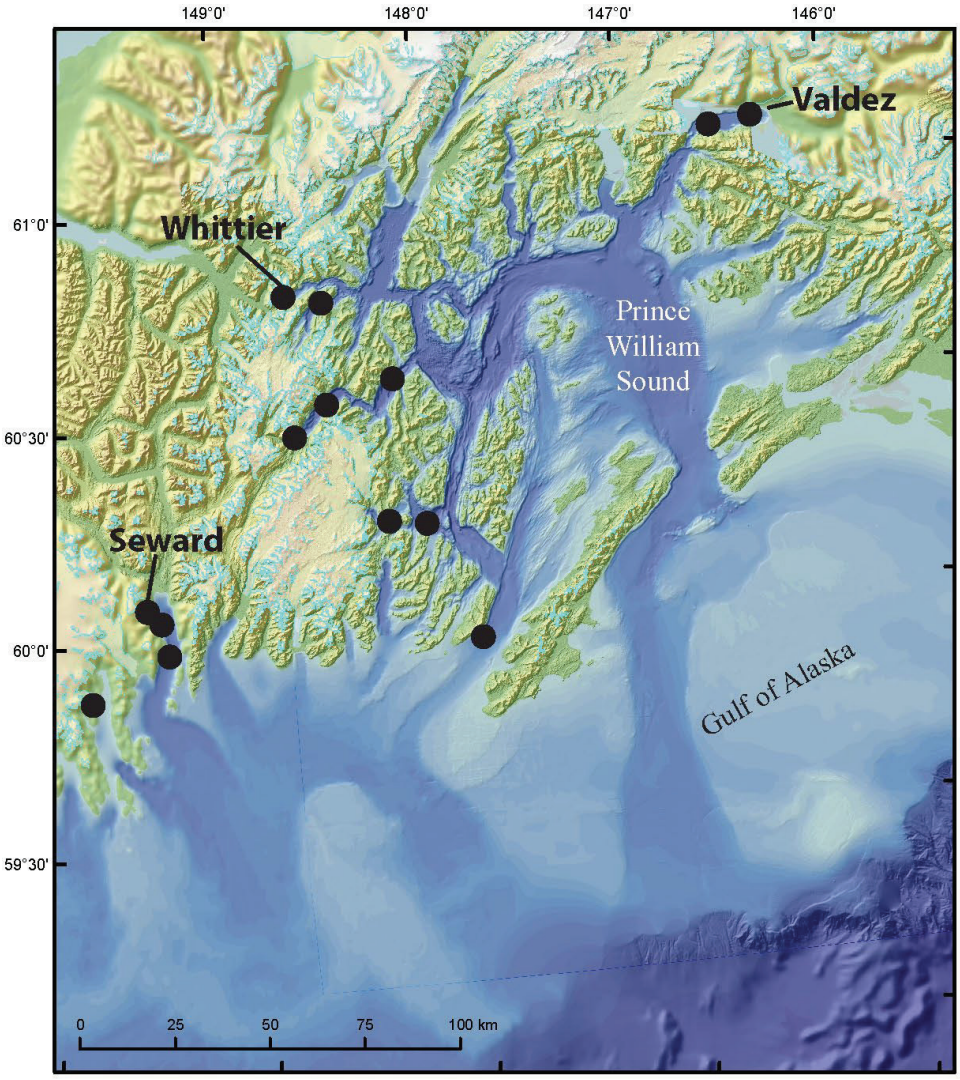

SEISMIC AND NON-SEISMIC INFLUENCES ON COASTAL CHANGE IN ALASKA

A Fieldtrip Guide and Conference Abstracts
5th International Converence of IGCP 588

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COSEISMIC VS CLIMATIC EFFECTS IN THE RECORD OF RELATIVE SEA-LEVEL CHANGES: AN EXAMPLE FROM LAST INTERGLACIALS IN SE SPAIN

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Trying to decipher how palaeoseismic activity has influenced the altitudinal disposition of interglacial deposits is one of the main challenges that must be achieved in order to quantify relative sea-level changes between consecutive highstands. Likewise, identifying palaeoseismic features in an area with low instrumental seismic activity can implement the seismic record and contribute to better seismic hazard knowledge. In this sense, Cope basin (SE Spain) becomes a reference basin to undertake this kind of analysis, firstly because of excellent outcrop conditions and secondly because the sea-level record is undoubtedly conditioned here by both effects: climatically driven changes and local and regional seismotectonics.

This basin is located in the inner part of the tectonically active structure of the Aguilas Arc (Eastern Betics) and holds one of the most complete and better exposed sequences of Quaternary marine terraces in SE Spain. The chronology of the whole sequence has been achieved by means of palaeomagnetism (upper Matuyama–Brunhes transition), faunal content (*Strombus bubonius*, MIS7–MIS5 in Iberian Peninsula) and sedimentary facies (oolithic sediments, characteristic of MIS5e). Several faults active during the Quaternary cross the basin, promoting the development of structural blocks with differential uplift and, hence, different present-day altitude of marine terraces, particularly MIS7–MIS5 units. A detailed topographic leveling of the whole Quaternary sedimentary sequence carried out across the basin evidences that tectonics has been active both before and after the last Interglacial.

The studied sequence includes three different highstands: two littoral sedimentary units separated by terrestrial deposits, affected by liquefaction (palaeoseismic activity), and the whole sequence being later cut by a palaeocliff and a wave-cut platform. This wave-cut platform is related to a later lower sea level that could have been promoted either by a climatically driven lower sea level or by a coseismic uplift. The comparative altitudinal analysis of the three maximum transgressive heights allows discriminating between these two possibilities.

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